PAKT II

THE CHEMISTEY OF THE BASIC OPEN-IIEABTH PROCESS

CIIAPTEK XVII

REDUCTION AND OXIDISATION PROCESSES

FOR technical purposes, iron must be produced entirely by artificial means. As direct raw materials for this purpose, only the compounds of iron with oxygen, the so-called iron ores, which exist in nature in large amounts, come into consideration. In order to produce metallic iron from ores, these must have their oxygen removed. This is brought about by moans of their being brought into contact with materials which possess a greater affinity for oxygen than iron, which, therefore, take up the oxygon, whereby the iron is brought into the metallic condition, or, as it is technically expressed, it is reduced. The materials which bring about the operation named, which are capable of bringing about reduction, arc called reducing agents; but inasmuch as these remove the oxygen from the iron ore they are themselves changed in form, since they now form with the oxygen chemical compounds: they become oxidised or undergo an oxidisation process. Thus a reduction process for an iron ore simultaneously appears as an oxidisation process for the reducing agent employed.

Iron evolves on combination with oxygen a large amount of heat energy which has been determined to be per kilogramme oxygen

4,826 calories on formation of FeaO*.
4,877 „ „ „ FeaOs.
4,662 „ „ „ FeO.